Multiple Choice Questions

Choose 2

1. On a given school day, the probability that Nick oversleeps is 48% and the probability he has a pop quiz is 25%. Assuming these two events are independent, what is the probability that Nick oversleeps and has a pop quiz on the same day?

(1) 73%
(2) 36%
(3) 23%
(4) 12%

RESPOND ON RESPONSE SHEET

2. Which binomial is *not* a factor of the expression $x^3 - 11x^2 + 16x + 84$?

(1) $x + 2$
(2) $x + 4$
(3) $x - 6$
(4) $x - 7$

RESPOND ON RESPONSE SHEET

3. The inverse of the function $f(x) = \frac{x+1}{x-2}$ is

(1) $f^{-1}(x) = \frac{x+1}{x+2}$
(2) $f^{-1}(x) = \frac{2x+1}{x-1}$
(3) $f^{-1}(x) = \frac{x+1}{x-2}$
(4) $f^{-1}(x) = \frac{x-1}{x+1}$

RESPOND ON RESPONSE SHEET

4. The solutions to the equation $5x^2 - 2x + 13 = 9$ are

(1) $\frac{1}{5} \pm \frac{\sqrt{21}}{5}$
(2) $\frac{1}{5} \pm \frac{\sqrt{19}}{5}i$
(3) $\frac{1}{5} \pm \frac{\sqrt{66}}{5}i$
(4) $\frac{1}{5} \pm \frac{\sqrt{66}}{5}$

RESPOND ON RESPONSE SHEET

5. A savings account, S, has an initial value of \$50. The account grows at a 2% interest rate compounded n times per year, t, according to the function below.

$$S(t) = 50\left(1 + \frac{.02}{n}\right)^{nt}$$

Which statement about the account is correct?

(1) As the value of n increases, the amount of interest per year decreases.
(2) As the value of n increases, the value of the account approaches the function $S(t) = 50e^{0.02t}$.
(3) As the value of n decreases to one, the amount of interest per year increases.
(4) As the value of n decreases to one, the value of the account approaches the function $S(t) = 50(1 - 0.02)^t$.

RESPOND ON RESPONSE SHEET

Free Response Questions

Choose 1

6. The recursive formula to describe a sequence is shown below.

$$a_1 = 3$$
$$a_n = 1 + 2a_{n-1}$$

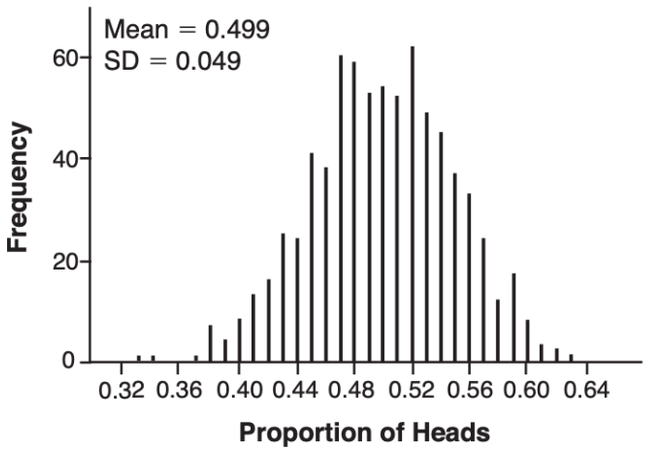
State the first four terms of this sequence.

RESPOND ON RESPONSE SHEET

Can this sequence be represented using an explicit geometric formula? Justify your answer.

RESPOND ON RESPONSE SHEET

7. Robin flips a coin 100 times. It lands heads up 43 times, and she wonders if the coin is unfair. She runs a computer simulation of 750 samples of 100 fair coin flips. The output of the proportion of heads is shown below.



Do the results of the simulation provide strong evidence that Robin's coin is unfair? Explain your answer.

RESPOND ON RESPONSE SHEET

RESPONSE SHEET
Multiple Choice

Name: _____

Problem number	Work and explanation
Answer	

Problem number	Work and explanation
Answer	

RESPONSE SHEET
Free Response

Name: _____

Problem number	Work, explanation, and answer